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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,524	03/08/2002	Yoshihisa Kagawa	0044-0251P	3823
2292	7590	03/23/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			SAYOC, EMMANUEL	
			ART UNIT	PAPER NUMBER
			3746	

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,524

Applicant(s)

KAGAWA ET AL.

Examiner

Emmanuel Sayoc

Art Unit

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ED

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendments of 12/16/2004. In making the below rejections and/or objections the examiner has considered and addressed each of the applicants arguments. Claims 1-14 are pending, and are under current consideration. Claim 1 is amended.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 5, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (U.S. 4,558,996) and in further view of Lepak (U.S. 3,644,068), referenced by Tsukada (U.S. 4,969,808).

With respect to claim 1, Becker in Figure 6, teaches a roller pump (5) comprising a housing (12a, 14, 52, 28) having a cylindrical inner surface (62, 40, 63), a rotor (120) fixed to a drive shaft (104) placed at the central portion of the pump (5) housing (12a, 14, 52, 28), rollers (166) provided around the rotor, and a driver for driving the drive shaft (obvious but not shown). The rollers (166) press an elastic tube (270) installed between the rollers (166) and the inner surface of the pump housing (62, 40, 63) toward the inner surface to transfer a liquid in the elastic tube in a direction being rotated by the rotor (120) to move the place where the rollers (166) press the elastic tube (270).

The Becker device differs from the claimed invention in that there is no explicit teaching of a driver driving the drive shaft through a reduction gear. It was well known in the art at the time the invention was made to drive the roller pump with a motor coupled to a pump drive shaft via a gearbox. Lepak in Figure 1, teaches a roller pump with a drive shaft (30) driven by a motor (12) via a gear box (14). Further more it was also well known that in frequent cases the motor shaft rotates a lot faster than that desired of the drive shaft. In such cases it was common to use a reduction gear box in order to rotate the drive shaft at lower speeds and higher torque. Tsukada in Figure 1 teaches a roller pump with a motor (21) driven shaft (13) via a reduction gears (22). Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Becker device by, utilizing a reduction gear box, as

taught by Lepak as referenced by Tsukada, in order to match the desired rotor drive speed given a stock motor. It is obvious that the pump housing (62, 40, 63) and the reduction gear are integrated into one body (they are assembled, fastened, and function as one component) and an output shaft (30). It is obvious that the reduction gearbox is fixed to the drive shaft of the rotor, otherwise the rotor would not function.

With respect to claim 5 and 14, a part of the inner surface of the pump housing (62, 40, 63) is composed of a semicircle (62) of which the center coincides with the center of the drive shaft (104), and another part of the inner surface is composed of a partial circles (63) of which the center is shifted from the center of the drive shaft (104). The length of radius of the part (63) is larger than the semicircle (62) and the partial circles (63) of the inner surface. Each end portions of the semicircle (62) are respectively connected to the end portions of the partial circles (63). The partial circle (63) is made to be a form suitable to be connected to an inlet slot (22) for attaching an inlet portion (18) of the elastic tube (270), and to an outlet slot (20) for attaching an outlet portion (shown not enumerated) of the elastic tube (270).

5. Claims 7, and 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker, as modified by Lepak referenced by Tsukada, as applied to claims 1, and 5, and in further view of Ohira et al. (JP 60088885 A).

With respect to claim 7, Becker, as modified by Lepak and Tsukada sets forth a device as described above, which is substantially analogous to the claimed invention. The Becker, as modified by Lepak and Tsukada device differs from the claimed

invention in that there is no explicit teaching of a rotatable lever on the inlet and outlet slots of the pump for clamping the inlet and outlet portions of the flexible tube. Ohira et al., in Figures 1 and 2, teach an analogous roller pump that it was well known to use clamp levers to for clamping the inlet and outlet portions of the flexible tube. Ohira et al. teach an inlet slot (shown not enumerated) provided with a lever (9) for pressing the inlet portion into the inlet slot to hold the inlet portion in the inlet slot. The lever is rotated perpendicularly to the axis of the elastic tube by a spring (closing spring 13 of lock member 11) force to press the inlet portion to the elastic tube. An upper end portion of the lever is tilted relative to the vertical axis. The inlet portion of the flexible tube is attached to the pump housing pushed downward through a place between the upper end portion and the inlet slot. The same exists for the outlet side of the pump.

Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Becker, as modified by Lepak and Tsukada, device by incorporating the lever system, as taught by Ohira et al., in order to obtain an easy releasable means of clamping the flexible tube in place a the inlet and the outlet.

6. Claims 1, 3, and 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Beller et al. (U.S. 20020001527 A1) and in further view of Lepak, referenced by Tsukada.

With respect to claim 1, Beller et al. in Figure 2, teaches a roller pump (1) comprising a housing (see Figure 3) having a cylindrical inner surface (11), a rotor (12) fixed to a drive shaft (shown not enumerated) placed at the central portion of the pump

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(1) housing (see Figure 3), rollers (shown not enumerated) provided around the rotor, and a driver for driving the drive shaft (obvious but not shown). The rollers press an elastic tube (13) installed between the rollers and the inner surface of the pump housing toward the inner surface to transfer a liquid in the elastic tube in a direction being rotated by the rotor (12) to move the place where the rollers press the elastic tube (13).

The Beller et al. device differs from the claimed invention in that there is no explicit teaching of a driver driving the drive shaft through a reduction gear. It was well known in the art at the time the invention was made to drive the roller pump with a motor coupled to a pump drive shaft via a gearbox. Lepak in Figure 1, teaches a roller pump with a drive shaft (30) driven by a motor (12) via a gear box (14). Further more it was also well known at the time the invention was made that in frequent cases the motor shaft rotates a lot faster than that desired of the drive shaft. In such cases it was common to use a reduction gear box in order to rotate the drive shaft at lower speeds and higher torque. Tsukada in Figure 1 teaches a roller pump with a motor (21) driven shaft (13) via a reduction gears (22). Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Beller et al. device by, utilizing a reduction gear box, as taught by Lepak as referenced by Tsukada, in order to match the desired rotor drive speed given a stock motor. It is obvious that the pump housing (62, 40, 63) and the reduction gear are integrated into one body (they are assembled, fastened, and function as one component) and an output shaft (30). It is obvious that the reduction gearbox is fixed to the drive shaft of the rotor, otherwise the rotor would not function.

With respect to claims 3 and 13, a part of the inner surface of the pump housing is composed of a semicircle (bottom quarter of support 11) of which the center coincides with the center of the drive shaft, and another part of the inner surface is composed of a partial circle (left quarter of support) of which the center is shifted from the center of the drive shaft. The length of radius of the partial circle (left quarter of support) is equal to the semicircle and the partial circle (left quarter of support) of the inner surface. Each end portions of the semicircle and each end of the partial circle (left quarter of support) are connected by each of tangential lines extending from each of the end portions of the semicircle toward each to the end portions of the partial circle (left quarter of support) respectively. The partial circle (left quarter of support) is made to be a form suitable to be connected to an inlet slot for attaching an inlet portion of the elastic tube (13), and to an outlet slot for attaching an outlet portion (shown not enumerated) of the elastic tube (13).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beller et al., as modified by Lepak referenced by Tsukada, as applied to claim 3, and in further view of Ohira et al.

With respect to claim 9, Beller et al. as modified by Lepak and Tsukada sets forth a device as described above, which is substantially analogous to the claimed invention. The Becker, as modified by Lepak and Tsukada device differs from the claimed invention in that there is no explicit teaching of a rotatable lever on the inlet and outlet slots of the pump for clamping the inlet and outlet portions of the flexible tube.

Ohira et al., in Figures 1 and 2, teaches an analogous roller pump that it was well known to use clamp levers to for clamping the inlet and outlet portions of the flexible tube. Ohira et al. teaches an inlet slot (shown not enumerated) provided with a lever (9) for pressing the inlet portion into the inlet slot to hold the inlet portion in the inlet slot. The lever is rotated perpendicularly to the axis of the elastic tube by a spring (closing spring 13 of lock member 11) force to press the inlet portion to the elastic tube. An upper end portion of the lever is tilted relative to the vertical axis. The inlet portion of the flexible tube is attached to the pump housing pushed downward through a place between the upper end portion and the inlet slot. The same exists for the outlet side of the pump.

Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Beller et al., as modified by Lepak and Tsukada, device by incorporating the lever system, as taught by Ohira et al., in order to obtain an easy releasable means of clamping the flexible tube in place at the inlet and the outlet.

8. Claims 2, 4, and 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Beller et al., as modified by Lepak and Tsukada, as applied to claim 1, and in further view of Knapp et al. (U.S. 5,387,088), and Suzuki et al.

With respect to claims 2, and 4, Beller et al., as modified by Lepak and Tsukada sets forth a device as described above, which is substantially analogous to the claimed invention. The Becker (U.S. 4,558,996), as modified by Lepak and Tsukada device differs from the claimed invention in that there is no explicit teaching of the motor being

a stepping/stepper motor provided with a rotation sensor and being roll controllable.

Knapp et al. teaches that is well known in the art to use a stepping motor to drive a roller pump due to the stepping motors simplicity, reliability, and ease in control – see column 3 line 44. Furthermore Suzuki et al. in Figure 1 teaches a stepping motor drive unit with a rotation speed detection circuit (105). Such a speed sensor/circuit is required in application where motor speed must be monitored for automation or control purposes. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Beller et al., as modified by Lepak and Tsukada, device by utilizing a stepping motor with a rotation sensor, as taught by Knapp et al. and Suzuki et al., in order to obtain a well-known, reliable, and easy to control drive means with the ability to monitor and accordingly automate or adjust motor speed.

With respect to claim 4, and 13, a part of the inner surface of the pump housing is composed of a semicircle (bottom quarter of support 11) of which the center coincides with the center of the drive shaft, and another part of the inner surface is composed of a partial circle (left quarter of support) of which the center is shifted from the center of the drive shaft. The length of radius of the partial circle (left quarter of support) is equal to the semicircle and the partial circle (left quarter of support) of the inner surface. Each end portions of the semicircle and each end of the partial circle (left quarter of support) are connected by each of tangential lines extending from each of the end portions of the semicircle toward each to the end portions of the partial circle (left quarter of support) respectively. The partial circle (left quarter of support) is made to be a form suitable to be connected to an inlet slot for attaching an inlet portion of the elastic tube (13), and to

an outlet slot for attaching an outlet portion (shown not enumerated) of the elastic tube (13).

9. Claims 2, 6, and 14, are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker, as modified by Lepak and Tsukada, as applied to claim 1, and in further view of Knapp et al. (U.S. 5,387,088), and Suzuki et al. (U.S. 5,929,589).

With respect to claims 2, 6, Becker, as modified by Lepak and Tsukada set forth a device as described above, which is substantially analogous to the claimed invention. The Becker (U.S. 4,558,996), as modified by Lepak and Tsukada device differs from the claimed invention in that there is no explicit teaching of the motor being a stepping/stepper motor provided with a rotation sensor and being roll controllable. Knapp et al. teaches that is well known in the art to use a stepping motor to drive a roller pump due to the stepping motors simplicity, reliability, and ease in control – see column 3 line 44. Furthermore Suzuki et al. in Figure 1 teaches a stepping motor drive unit with a rotation speed detection circuit (105). Such a speed sensor/circuit is required in application where motor speed must be monitored for automation or control purposes. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Becker, as modified by Lepak and Tsukada, device by utilizing a stepping motor with a rotation sensor, as taught by Knapp et al. and Suzuki et al., in order to obtain a well-known, reliable, and easy to control drive means with the ability to monitor and accordingly automate or adjust motor speed.

With respect to claim 6 and 14, a part of the inner surface of the pump housing (62, 40, 63) is composed of a semicircle (62) of which the center coincides with the center of the drive shaft (104), and another part of the inner surface is composed of a partial circles (63) of which the center is shifted from the center of the drive shaft (104). The length of radius of the part (63) is larger than the semicircle (62) and the partial circles (63) of the inner surface. Each end portions of the semicircle (62) are respectively connected to the end portions of the partial circles (63). The partial circle (63) is made to be a form suitable to be connected to an inlet slot (22) for attaching an inlet portion (18) of the elastic tube (270), and to an outlet slot (20) for attaching an outlet portion (shown not enumerated) of the elastic tube (270).

10. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker, as modified by Lepak, Tsukada, Knapp, and Suzuki et al., as applied to claims 2, and 6, and in further view of Ohira et al. (JP 60088885 A).

With respect to claims 8 and 12, Becker, as modified by Lepak, Tsukada, Knapp, and Suzuki et al., set forth a device as described above, which is substantially analogous to the claimed invention. The Becker, as modified by Lepak and Tsukada device differs from the claimed invention in that there is no explicit teaching of a rotatable lever on the inlet and outlet slots of the pump for clamping the inlet and outlet portions of the flexible tube. Ohira et al., in Figures 1 and 2, teaches an analogous roller pump that it was well known to use clamp levers to for clamping the inlet and outlet portions of the flexible tube. Ohira et al. teaches an inlet slot (shown not

enumerated) provided with a lever (9) for pressing the inlet portion into the inlet slot to hold the inlet portion in the inlet slot. The lever is rotated perpendicularly to the axis of the elastic tube by a spring (closing spring 13 of lock member 11) force to press the inlet portion to the elastic tube. An upper end portion of the lever is tilted relative to the vertical axis. The inlet portion of the flexible tube is attached to the pump housing pushed downward through a place between the upper end portion and the inlet slot. The same exists for the outlet side of the pump.

Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Becker., as modified by Lepak, Tsukada, Knapp, and Suzuki et al., device by incorporating the lever system, as taught by Ohira et al., in order to obtain an easy releasable means of clamping the flexible tube in place a the inlet and the outlet.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beller et al., as modified by Lepak, Tsukada, Knapp, and Suzuki et al., as applied to claim 4, and in further view of Ohira et al.

With respect to claim 9, Beller et al., as modified by Lepak, Tsukada, Knapp et al., and Suzuki et al., set forth a device as described above, which is substantially analogous to the claimed invention. The Becker, as modified by Lepak, Tsukada, Knapp et al., and Suzuki et al., device differs from the claimed invention in that there is no explicit teaching of a rotatable lever on the inlet and outlet slots of the pump for clamping the inlet and outlet portions of the flexible tube. Ohira et al., in Figures 1 and

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2, teach an analogous roller pump that it was well known to use clamp levers to for clamping the inlet and outlet portions of the flexible tube. Ohira et al. teach an inlet slot (shown not enumerated) provided with a lever (9) for pressing the inlet portion into the inlet slot to hold the inlet portion in the inlet slot. The lever is rotated perpendicularly to the axis of the elastic tube by a spring (closing spring 13 of lock member 11) force to press the inlet portion to the elastic tube. An upper end portion of the lever is tilted relative to the vertical axis. The inlet portion of the flexible tube is attached to the pump housing pushed downward through a place between the upper end portion and the inlet slot. The same exists for the outlet side of the pump.

Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Beller et al., as modified by Lepak, Tsukada, Knapp et al., and Suzuki et al., device by incorporating the lever system, as taught by Ohira et al., in order to obtain an easy releasable means of clamping the flexible tube in place at the inlet and the outlet.

Response to Amendment

12. The objection to the title and the specification is hereby withdrawn in view of applicant's amendments.

The substitute specification filed 12/16/2004 is accepted and hereby entered.

Response to Arguments

13. Applicant's arguments filed 12/16/2004 have been fully considered but they are not persuasive.

The applicant relies on the argument that the cited prior art do not teach a roller pump with a pump housing and a reduction gear integrated into one body. The prior art has established that reduction gears were well known to be used in drive assemblies in roller pumps. According to *The American Heritage® Dictionary of the English Language, Fourth Edition Copyright © 2000 by Houghton Mifflin Company*, the definition of "integrated" is, "to join with something else; unite," or "to make part of a larger unit." The prior art certainly meets the definition of integrated in that the whole roller pump is one unit consisting of pump parts, such as the housing and the reduction gear. The fact that the gear is assembled with, within, or onto the housing constitutes joining, uniting, or making part of a larger unit pump, or pump subassembly.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to peristaltic roller pumps.

U.S. Pat. 4,969,808 to Tsukada

U.S. Pat. 3,644,068 to Lepak

U.S. Pat. 3,885,894 to Sikes

U.S. Pat. GB 2051253 A to Gustafsson

U.S. Pat. 3,963,023 to Hankinson

U.S. Pat. 5,897,300 to Luedtke

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

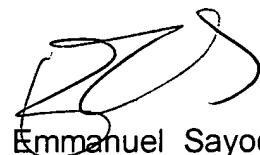
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (571) 272 4832. The examiner can normally be reached on M-F 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Emmanuel Sayoc
Examiner
Art Unit 3746



CHERYL TYLER
SUPERVISORY PATENT EXAMINER

ECS